Decision 17-12-005 December 14, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs Pursuant to Public Utilities Code Section 2827.1, and to Address Other Issues Related to Net Energy Metering.	Rulemaking 14-07-002

DECISION TO FACILITATE VIRTUAL NET ENERGY METERING GENERATION PAIRED WITH A STORAGE SYSTEM

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DECISION TO FACILITATE VIRTUAL NET ENERGY METERING GENERATION PAIRED WITH A STORAGE SYSTEM

Summary

This decision adopts modifications to investor owned utilities' virtual net energy metering tariffs, in order to facilitate virtual net energy metering-eligible generation paired with a storage system.

This proceeding remains open.

1. Background

The interaction of current Commission policies regarding net energy metering (NEM) paired with eligible storage systems, and virtual net energy metering (VNEM), pose an impediment to adoption of eligible storage systems by VNEM customers.[1] Decision (D.) 14-05-033, which authorized paired storage for NEM systems (NEM-PS), established a "no export" rule by prohibiting NEM compensation for exported energy that exceeds the amount produced by a NEM-eligible generator at the time of export; the purpose of this limitation was to ensure "NEM integrity", *i.e.,* that NEM credit only be generated by eligible renewable generation.[2] D.08-10-036, which established the VNEM tariff,

[1] Net energy metering tariffs enable customers to serve their energy needs directly with onsite generation, and to receive a financial credit on their electric bills for any surplus energy fed back to their utility. Virtual net energy metering tariffs, available to multi-tenant properties, enable an owner of such property to allocate a solar system's benefits to tenants across multiple units. Tariff rules allow the system owner to allocate renewable generation bill credits between common areas and tenants along a single service delivery point or multiple service delivery points. In all other manners, the bill credits function the same as for NEM tariffs.

[2] D.14-05-033 adopted metering requirements for large net energy metering – paired storage systems; these requirements effectively prohibit NEM compensation for exported energy that exceeds the amount produced by the NEM-eligible generator at the time of export. (*See* D.14-05-033, at 19-21; and August 14, 2017 ruling, at 2 – 4.)

effectively established a "no load" rule by specifying that this tariff must allow for the allocation of net energy metering benefits from a single solar system to all meters on an individually metered multifamily affordable housing property; the purpose of this rule was to avoid costly master metering hardware or site-specific infrastructure upgrades.[3] D.11-07-031 and D.16-01-044 modified VNEM eligibility to allow any multi-tenant or multi-metered complex to take service under VNEM, either at a single service delivery point or across multiple service delivery points at a single site. The combined effect of the "no export" rule and the "no load" rule is to negate the economic incentive for multi-tenant, multi-metered property owners and managers to pair VNEM systems with energy storage.

On August 14, 2017 the assigned Administrative Law Judge (ALJ) issued a ruling (August 14, 2017 ruling) describing current Commission policy that effectively discourages VNEM customers from installing energy storage systems.[4] Specifically, as the August 14, 2017 ruling explains:

> Taken together, the NEM-PS "no export" rule and the VNEM "no load" rule seem to preclude VNEM customers from receiving any economic benefit to support the installation of energy storage systems, and as a result, it is unlikely that VNEM customers would...choose to install paired storage.

[3] *See* D.08-10-036, at 31-33.

[4] Rulemaking (R.) 14-07-002 Administrative Law Judge's Ruling Seeking Comment on Use of Energy Storage by Customers on Virtual Net Metering Tariffs, issued August 14, 2017 (August 14, 2017 ruling).

The August 14, 2017 ruling sought comments on two proposed options for adjusting the VNEM tariffs to address this effective barrier.[5] The first option, Alternative #1, would adjust the VNEM tariffs such that both the VNEM generator and the storage device would be located behind the same output meter, which would be required to include a physical non-import relay to prevent grid power from flowing toward the battery. This would ensure that any exports to the grid are produced by the NEM generator, therefore ensuring the integrity of the NEM system. The second option, Alternative #2, would adjust the VNEM tariffs such that storage paired with a VNEM system is limited to discharge up to the aggregate customer demand of all the customers participating in that VNEM arrangement in the applicable interval,[6] with all charging and discharging allocated to benefitting customers in proportion to the VNEM allocation and debited/credited at each customer's full retail rate. This approach mimics the metering requirements for larger paired systems under the standard NEM tariff, and effectively prevents storage systems from generating NEM credits from grid-delivered electricity.

[5] Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) have different VNEM tariffs, respectively, for multifamily affordable housing (NEMVMASH, MASH-VNM, VNM-A); successor tariff for multifamily affordable housing (NEM2VMASH, MASH-VNM-ST, VNM-A-ST); multi-tenant and multi-meter properties (NEMV, NEM-V, NEM-V); and successor tariff for multi-tenant and multi-meter properties (NEM2V, NEM-V-ST, NEM-V-ST).

[6] The applicable interval (*e.g.,* 15-minute or 60-minute) would depend on the customer's otherwise applicable tariff.

2. Comments on the August 14, 2017 Ruling

On August 30, 2017, the following parties filed opening comments on the August 14, 2017 ruling: California Solar Energy Industries Association (CalSEIA), California Energy Storage Association (CESA), California Housing Partnership Coalition (CHPC), Center for Sustainable Energy (CSE), Everyday Energy, GRID Alternatives, Office of Ratepayer Advocates (ORA), PG&E, Interstate Energy Renewable Council (IREC), SCE, SDG&E, and The Utility Reform Network (TURN). On September 6, 2017, CSE, PG&E, SCE and SDG&E filed reply comments.

We address parties' comments according to the two options that Commission Staff proposed for resolving the current policy barrier for VNEM customers to install energy storage. A number of parties raised additional issues, which we address following our discussion of Staff's proposed options.

2.1. Staff Proposal

2.1.1. Alternative #1 – Enable Location of VNEM-Eligible Generator and Storage Device Behind the Same Output Meter

Most parties suggest that, between the two alternatives that Staff proposes, Alternative #1 is preferable in that it is generally less costly and simpler to implement, and easier for customers to understand.

CHPC, Everyday Energy and GRID Alternatives encourage the Commission to prioritize Alternative #1 over Alternative #2.[7] A petition for modification of D.16-01-044 filed jointly by CalSEIA, the MASH Coalition and

[7] It should be noted that time of use (TOU) rates are not mandatory for residential customers generally, but only for residential customers on a NEM successor tariff.

Everyday Energy[8] also recommends the Commission prioritize Alternative #1, as it is the least costly and complex option.[9]

CESA disagrees that D.08-10-036 precludes the serving of onsite load by VNEM generators or paired energy storage devices, but nevertheless supports Alternative #1.[10] ORA, PG&E, SDG&E and TURN also prefer Alternative #1, asserting generally that Alternative #2 is more complex than necessary to satisfy the Commission's objective of making paired storage economical for VNEM customers.[11] PG&E suggests a need to work out some of the details of Alternative #1. Similarly, SDG&E qualifies its support for Alternative #1 on customers providing a disconnect device at their expense, and on the Commission acknowledging the customer costs necessary to implement this option.

2.1.1.1. Proposed Modifications to Alternative #1 to Address Auxiliary Power Needs of Storage Devices

CalSEIA and SCE support Alternative #1, but propose specific modifications to address situations during which storage systems need grid power to remain energized.

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[8] Everyday Energy opening comments, at 4.

[9] GRID Alternatives opening comments, at 5.

[10] CESA opening comments, at 4.

[11] ORA opening comments, at 1-2; PG&E opening comments, at 3-4; SDG&E opening comments, at 1-2; and TURN opening comments, at 3.

2.1.1.1.1. CalSEIA Proposal

CalSEIA states that its petition for modification of D.14-05-033, to allow direct current (DC)-coupled solar plus storage systems, "seeks to resolve the very same issue regarding VNEM" as the August 14, 2017 ruling proposes to address.[12] The CalSEIA petition for modification of D.14-05-033 also seeks relief on a number of other issues not related to the August 14, 2017 ruling, so we reserve our formal disposition of their petition for another time. CalSEIA equates Alternative #1 with the "Solar Only Charging" configuration proposed in its petition, "[a]s long as the Commission understands that such a relay could be a stand-alone device or an equivalent function internal to the inverter or another device."[13] The importance of this distinction, CalSEIA asserts, is that a "relay that prevents power from ever flowing from the grid to the paired system is probably unworkable, because a storage system always needs power for auxiliary loads and there would be times when it is not available from the solar system or the battery itself."[14]

[12] R.14-07-002 Petition of the California Solar Energy Industries Association for Modification of Decision 14-05-033 to Allow DC-Coupled Solar Plus Storage Systems, filed September 1, 2017.

[13] R.14-07-002 Comments of the California Solar Energy Industries Association on Administrative Law Judge's Ruling Seeking Comment on Use of Energy Storage by Customers on Virtual Net Metering Tariffs, filed August 30, 2017 (CalSEIA opening comments), at 2-3.

[14] CalSEIA opening comments, at 3.

CalSEIA offers a specific, voltage-controlled configuration to ensure solar-only charging, but also recommends the Commission "be agnostic as to the specific configuration as long as it can be verified that power is never imported from the grid to charge a storage device."[15] For validation purposes, CalSEIA offers three compliance options – a firmware solution, a password-protected installation setting, and a data solution – and recommends the data option more immediately since product design and certification can take two years.

CSE supports CalSEIA's proposed modification, and "urges the Commission to take CALSEIA's advice to 'be agnostic as to the specific configuration.'"[16] The electric investor owned utilities, while open to further consideration, express a need for more information and scrutiny to understand CalSEIA's proposal.[17]

2.1.1.1.2. SCE Proposal

Like CalSEIA, SCE acknowledges the need for storage devices to consume a minimal amount of grid energy in order for their control systems to function, and recommends the Commission allow customers to consume up to the minimal amount of grid energy necessary, which SCE states will mimic the physical non-import concept included in Alternative #1. SCE states it would inform customers of this threshold amount before issuing permission to operate, and customers whose systems consume more than that threshold amount in any single billing interval would forfeit their NEM credits for that billing cycle.

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[15] CalSEIA comments, at 5.

[16] CSE reply comments, at 2.

[17] SDG&E reply comments, at 8; SCE reply comments, at 3; and PG&E reply comments, at 4.

CSE supports SCE's proposal, but requests clarification of whether the VNEM-paired storage system that consumes more than the minimal amount needed to stay energized in any single billing interval forfeits NEM credits during that bill interval, or for the entire billing cycle.[18] SDG&E does not support SCE's proposed modification, stating it would cost "in excess of $1million [*sic*] because it would complicate billing and require updates to all systems related to billing and customer-facing activities."[19] PG&E is similarly concerned with the billing system needs and urges the Commission to allow for further vetting of SCE's proposal before determining whether to adopt it.

2.1.2. Alternative #2 – Limit Discharge of VNEM-Eligible Generator to Customers' Aggregate Demand, by Interval

Although most parties state or otherwise indicate that Alternative #1 is simpler to implement, several parties suggest Alternative #2 may be preferable in certain situations.

CalSEIA, CHPC, Everyday Energy, IREC and GRID Alternatives suggest that Alternative #2 may be conducive to certain VNEM scenarios, particularly where peak loads require less than a full energy storage discharge could find this option viable, and therefore supports its adoption.[20]

CESA, ORA, the electric investor owned utilities, and TURN generally do not support Alternative #2 since it would create significant billing and implementation challenges, given the need to monitor and credit generation and

[18] CSE reply comments, at 3.

[19] SDG&E reply comments, at 2.

[20] CalSEIA opening comments, at 8; CHPC opening comments, at 3; Everyday Energy opening comments, at 5; IREC opening comments, at 3; and GRID Alternatives, at 4.

storage use at each interval, and may not preclude paired energy storage systems from charging from the grid.[21] PG&E and TURN suggest further that Alternative #2 creates various gaming opportunities, and SDG&E asserts Alternative #2 "would transfer the cost of grid-delivered energy to the benefitting accounts in the VNEM arrangements, in addition to generation credits," and as a result "benefitting customers lose their ability to manage their own usage relative to TOU periods and total kWh."[22]

CHPC and CSE, GRID Alternatives and IREC assert that VNEM customers should be able to select from multiple options to find the most economical solution, and not be limited to a single option. Related to this, CHPC and CSE assert that any solutions the Commission adopts should work for many types of NEM and VNEM configurations for multi-family affordable housing properties.[23]

Most other parties do not address whether to enable options beyond Alternative #1 since they either oppose Alternative #2 and/or favor Alternative #1 over Alternative #2. SCE and SDG&E assert the Commission should only authorize one option for resolving the "no load"/"no export" conflict for VNEM customers.

2.1.3. Discussion

Most parties agree that Alternative #1 is the preferred option between Staff's proposed alternatives. We agree that Alternative #1, relative to

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[21] CESA opening comments, at 6; ORA opening comments, at 2; PG&E opening comments, at 4-5; SDG&E opening comments, at 3; TURN opening comments, at 3.

[22] SDG&E opening comments, at 3.

[23] CSE comments, at 2. CSE also requests, specifically, that hardware and meter approaches allow for DC-paired storage systems, which existing metering requirements currently preclude.

Alternative #2, is simpler to implement, easier for customers and vendors/installers to understand, and more aligned with the original intent of NEM policy, which is to provide compensation for renewable distributed energy.

CalSEIA and SCE describe, and other parties confirm, the need for paired energy storage systems to draw energy from the grid during times when electricity from the VNEM generator and storage system are insufficient to maintain the storage system's control system. We should allow for a minimal amount of charging from the grid in order to maintain paired storage systems' operational viability. Most parties that respond to CalSEIA's and SCE's proposed options, to allow paired storage systems to draw energy from the grid under Alternative #1, express a need for further vetting and clarification of both proposals. With the understanding that we should allow paired storage systems to draw energy from the grid, and that parties desire an opportunity to explore the proposals put forth to address this, we will direct Staff to hold a public workshop during which CalSEIA and SCE may present in detail how the utilities and vendors/installers would implement their respective proposals. In general this workshop should focus on identifying a means to implement Alternative #1 with minimal complexity and cost (for all stakeholders). Apart from that general guidance and one further direction in response to TURN's comments (Section 2.2.1), Staff should otherwise have discretion to define the scope of this workshop, including whether to discuss and/or allow other stakeholders to present additional options and associated issues.

In response to comments on the proposed decision, we clarify that Alternative #1 may employ a device that is functionally equivalent to a physical non-import relay, subject to any third-party certification or other standard(s) that

Commission Staff deems appropriate; Commission Staff should address this issue as part of the aforementioned workshop.

With respect to allowing customer choice between both alternatives, our general preference is to enable customers to choose a configuration that best fits their circumstances. We must balance this preference, however, with ensuring the utilities' costs for such accommodation are not excessive or unreasonably high. Parties raised substantial concerns and questions regarding Alternative #2, including the potential complexity and costs of implementation, such that we find it reasonable to suspend further consideration of Alternative #2 unless and until parties can more fully articulate and evaluate its merits. Our immediate interest is in identifying a viable solution for the majority of configurations that currently exist. If and as the variation in VNEM configurations increases, we encourage all parties to consider viable alternatives and bring forth those proposals for consideration.

2.2. Other Issues Raised in Comments

2.2.1. Implementation and Monitoring

TURN expresses concern about unintended consequences of allowing a VNEM system to draw energy from the grid, and recommends the Commission provide for data collection to examine production output, uses of storage, and any utility expenditures incurred to integrate storage, regardless of which option the Commission adopts. In the event that the Commission subsequently modifies initial rules, based on such data, TURN further recommends the Commission reserve the right to modify the tariff with no grandfathering for current subscribers.[24]

[24] TURN opening comments, at 3.

No parties addressed TURN's recommendation in their reply comments.

Although by their nature unintended consequences are difficult if not impossible to anticipate, we should endeavor to identify potential risks of any implementation plan, and consider ways to address such risks. As part of the workshop that we will direct Staff to organize regarding implementation of Alternative #1, Staff should ask workshop participants to identify potential risks posed by Alternative #1 and potential ways to address those risks, including TURN's recommendation for data collection and monitoring.

2.2.2. Current Commission Policy Not Allowing Any Other Load Behind the Meter of the VNEM Generator

CESA advocates for additional loads (*e.g.,* common area or tenant loads) to be added behind the output meter of the VNEM generator, "as long as metering options or some other solution is put in place to ensure NEM credits are only given to stored energy from the VNEM generator."[25] Related to this, CESA also recommends the Commission consider the long-term desirability of prohibiting grid charging of VNEM-paired storage systems, noting "[t]here may be instances where grid charging is needed to provide emergency backup to the multi-family and multi-tenant buildings during significant grid outages, and/or to allow vendors to better guarantee their services and customer savings by having a backup 'fuel source' from the grid."[26]

[25] CESA opening comments, at 4.

[26] CESA opening comments, at 5.

PG&E, SCE and SDG&E oppose CESA's recommendation to allow additional loads behind the output meter of the VNEM generator. PG&E disagrees with CESA's stated premise for its recommendation, which is that the policy it seeks to change is the primary regulatory barrier to pairing storage with renewable generators in VNEM tariffs. By facilitating adoption of energy storage by VNEM customers, PG&E asserts we need not consider CESA's proposal. SCE surmises the building owner or operator would install the VNEM system on a common area meter, which goes against the overriding intent of VNEM policy, *i.e.*, to benefit multi-family and multi-tenant residential customers (as opposed to building owners or managers). SCE also states that implementing this recommendation would require billing system and other operational changes, for which SCE would incur additional costs. SDG&E asserts that allowing VNEM to serve onsite load would prevent the baselining required for VNEM purposes using the generation meter.

The net benefits of adopting CESA's recommendation remain unclear at this time, and we are not convinced CESA has demonstrated the "no-load" policy is a critical barrier to VNEM customers' adoption of energy storage. Therefore we will not entertain CESA's recommendations at this time. Should CESA or any party wish to demonstrate whether, how and to what extent the "no-load" policy is a barrier to VNEM customers' adoption of energy storage, we may then consider CESA's comments on this issue

2.2.3. Virtual Offsetting of Demand Charges Through VNEM-Paired Energy Storage, and Related Issues

CHPC and CSE advocate for the Commission to allow all VNEM and VNEM-paired storage projects to reduce their demand charges, as is currently allowed for VNEM tariffs in which eligible properties are served at the same

service delivery point. Specifically, CSE explains, "[t]he current market-rate NEMV tariffs enable demand charge reductions through a request for a demand credit. To date, however, the use of affordable-housing VNM-A/MASH tariffs have been solely for the purpose of reducing kWh consumption from multifamily and multimeter properties and have not offered the option for a demand credit."[27] CSE points to PG&E's VNEM tariff for a methodology for calculating the netted demand charge.[28]

On a separate but related note, CSE highlights that PG&E's NEMV tariff is the only IOU VNEM tariff to include an explicit methodology for calculating the NEM credit to be applied to a customer's demand charges, and asks the Commission to address the apparent lack of transparency in SCE's and SDG&E's tariffs. Also separate but related, CSE encourages the Commission to examine the differences and lack of transparency in the billing fees associated with VNEM customers requesting to receive a demand credit.

In reply comments, PG&E, SCE and SDG&E argue against CHPC and CSE's recommendation. PG&E explains that the original version of its NEMV tariff, which went into effect in June 2012, "allowed the allocated energy to also be potentially credited with reductions in demand," because "[t]he benefits of the 'allocated' demand reduction were actually experienced by the grid because generator and load were behind the [same service delivery point] and the customer's own assets were used to transport the electricity from the generating

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[27] CSE opening comments, at 3. VNEM tariffs applicable to multi-tenant and multi-meter properties are referred to as NEMV (PG&E) or NEM-V (SCE, SDG&E) tariffs. VNEM tariffs applicable to multi-family affordable housing are referred to as VNM-A (SDG&E), NEMVMASH (PG&E) or MASH-VNM (SCE).

[28] *See* PG&E's Electric Schedule NEM2V, Virtual Net Energy Metering Service.

accounts to the benefitting accounts... This demand credit option was not included in the low-income VNEM tariff, NEMVMASH, nor in the NEMA tariff, because the grid was used to transport the power in those arrangements."[29] SDG&E similarly asserts that "there is no real decrease in customer demand," and concludes therefore that "this proposal would increase the cost shift that currently exists under VNEM."[30] SCE states that its residential tariffs do not contain demand charges, "so there are no demand charges to virtually offset for these benefitting accounts."[31]

A general aim of rate design is to follow a cost causation principle, by which customers should bear responsibility for the costs they impose on the system; a corollary to this principle is that customers should also receive compensation or credit for the benefits they provide to the system. PG&E asserts that the grid benefit of behind-the-meter generation, in terms of reduced demand, relies on whether generation and load are behind the same service delivery point. What is not clear is the extent of low income or affordable housing VNEM arrangements that locate generation and load behind the same service delivery point, as opposed to those that span multiple service delivery points. To the extent particular VNEM arrangements reduce grid demand, we should seek to better understand that benefit in order to consider whether the investor owned utilities should afford those customers the option to virtually

[29] PG&E reply comments, at 4-5. NEMA refers to net energy metering aggregation, which allows an eligible customer with multiple meters on the same property, or on adjacent or contiguous properties, to use renewable generation to serve the aggregated load behind all eligible meters and receive NEM bill credits.

[30] SDG&E reply comments, at 5.

[31] SCE reply comments, at 4.

reduce their demand charges. In response to comments on the proposed decision, we have revised our discussion to specify that the Commission may address this issue in this proceeding. Multiple other proceedings are addressing the issue of distributed energy resources' value; CHPC and CSE's recommendation may be more appropriately addressed in one of those proceedings, but that depends in part on information that Commission Staff is currently awaiting from the IOUs to examine and better understand the specifics of low income or affordable housing VNEM arrangements, including the extent of such arrangements in which the VNEM-eligible generator is behind the same service delivery point as the common area load. The IOUs should collect and report such information in order to advance parties' understanding of the circumstances that warrant virtual offsetting of demand charges. As part of this same examination, PG&E should share and explain its existing methodology for calculating netted demand charges. We will direct PG&E to file and serve this information to the service list of this proceeding.

2.2.4. Issues Unrelated to Facilitating Paired Storage for Virtual Net Energy Metering Customers

Several parties also raised broader policy issues that do not directly impact our determination to facilitate VNEM customers' adoption of paired storage.

2.2.4.1. Metering Requirements for NEM-paired Energy Storage Systems

CSE states that existing metering requirements for NEM-paired energy storage systems apply only to AC-paired storage systems, and requests that the hardware and meter approaches be agnostic to AC and DC-paired storage systems.

SDG&E notes that in D.14-05-033, the Commission addressed metering requirements when a storage device is not behind the same inverter used by the NEM-eligible generator and declined to provide an alternative solution for other arrangements, suggesting it is inappropriate for the Commission to now reverse its decision in response to CSE's comments.

2.2.4.2. Affording NEM-Paired Storage Credit Eligibility to DC-Paired Systems Generally

CSE notes that DC-paired systems that are not VNEM behind-the-meter storage systems "could be configured to charge solely from a NEM-eligible generator and shift this generation to other times of the day, similar to the VNEM-paired storage systems described" in the August 14, 2017 ruling, and therefore suggests that the Commission extend NEM credit eligibility to non-VNEM DC-paired systems NEM-paired storage configurations.[32] GRID Alternatives also advocates that "[i]f the Commission acknowledges that fully integrated energy storage may export to receive NEM credit under VNEM (Alternative #1), then fully integrated energy storage should be allowed to export and receive NEM credit under the broader NEM program."[33]

SDG&E opposes the proposal to allow credit from export in the broader NEM program, stating "[t]his proposes a fundamental change to the NEM program and should not be submitted based on comments and a shortened response time, especially where the ruling focuses [sic] is on specific alternatives."[34]

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[32] CSE opening comments, at 3.

[33] GRID Alternatives opening comments, at 6.

[34] SDG&E reply comments, at 7-8.

2.2.4.3. Discussion

The issue raised by CSE regarding metering requirements for DC-coupled NEM-paired energy storage systems is being addressed in Rulemaking 17-07-007, therefore we will not consider that proposal here.

The remaining issues above have significant implications that may deserve fuller evaluation than we permitted, in one round of comments on a specific Staff proposal for facilitating VNEM customers' adoption of energy storage. Addressing the above issues requires further deliberation and is not conducive to our more immediate interest in implementation of Alternative #1, therefore we will not consider these proposals at this time. However, any VNEM system paired with storage that complies with Alternative #1 shall be eligible for VNEM regardless of whether that system is AC-coupled or DC-coupled.

3. Conclusion

It is reasonable to direct the IOUs to modify their VNEM tariffs such that customers have an economic incentive to pair their VNEM systems with energy storage, pursuant to the general arrangement outlined in Alternative #1. Parties should have a further opportunity to vet and seek clarification on the details of implementing Alternative #1. Therefore, we will direct Energy Division Staff to hold a public workshop for this purpose. We will require the electric investor owned utilities to file Tier-2 advice letters modifying their VNEM tariffs to implement Alternative #1 subsequent to the staff workshop.

In the interest of proceeding with implementation of Alternative #1, we decline to address other issues raised by parties in response to Staff's proposal for facilitating adoption of energy storage by VNEM customers.

4. Comments on Proposed Decision

The proposed decision of the Administrative Law Judge (ALJ) in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. On December 4, 2017, the following parties filed comments on the proposed decision: CalSEIA, CESA, IREC, PG&E and SCE. On December 11, 2017, the following parties filed reply comments: CalSEIA, PG&E and SCE.

This decision incorporates the following revisions in response to parties' comments on the proposed decision:

- clarification of the conditions under which NEM-eligible systems with paired storage may receive NEM credits;
- clarification that the issue of virtual offsets to demand charges for VNEM-eligible systems may be considered in this proceeding; and
- clarification that Alternative #1 may employ a configuration that is functionally equivalent to a physical non-import relay device.

5. Assignment of Proceeding

Martha Guzman Aceves is the assigned Commissioner. Jessica T. Hecht and Valerie U. Kao are the assigned ALJs in this proceeding.

Findings of Fact

1. D.14-05-033 effectively prohibits NEM compensation for exported energy that exceeds the amount produced by the NEM-eligible generator at the time of export.

2. D.08-10-036 established the VNEM tariff and specifies that this tariff must allow for the allocation of net energy metering benefits from a single solar system

to all meters on an individually metered multifamily affordable housing property, without adversely impacting building tenants.

3. D.11-07-031 expanded the scope of VNEM to include any multi-tenant and multi-metered complex that was behind a single service delivery point. D.11-07-031 also expanded the scope of VNEM for multifamily affordable housing properties to include those properties in a complex with multiple service delivery points.

4. D.16-01-044 expanded VNEM to allow multiple service delivery points at a single site for all property types.

5. The combined effect of D.14-05-033, D.08-10-036, D.11-07-031 and D.16-01-044 is to negate the economic incentive for multi-tenant, multi-metered property owners and managers to pair VNEM systems with energy storage.

6. The August 14, 2017 ruling sought comments on two proposed options for adjusting the VNEM tariffs to address this effective barrier. The first option, Alternative #1, would adjust the VNEM tariffs such that both the VNEM generator and the storage device would be located behind the same output meter, which would be required to include a physical non-import relay to prevent grid power from flowing toward the battery. The second option, Alternative #2, would adjust the VNEM tariffs such that storage paired with a VNEM system is limited to discharge up to the aggregate customer demand of all the customers participating in that VNEM arrangement in the applicable interval, with all charging and discharging allocated to benefitting customers in proportion to the VNEM allocation and debited/credited at each customer's full retail rate.

7. Of the two options proposed by Commission Staff to facilitate adoption of energy storage by VNEM customers, Alternative #1 is simpler to implement, easier for customers and vendors/installers to understand, and more aligned with the intent of the NEM program. Implementation of Alternative #1 requires further vetting, including options for allowing a minimal amount of grid energy to maintain the storage device's control system functionality.

8. None of the utilities provide information regarding the extent of low income and affordable housing VNEM arrangements that locate generation and load behind the same service delivery point, as opposed to arrangements that span multiple service delivery points.

9. Parties raise additional issues that are not central to our determination to facilitate adoption of energy storage by VNEM customers, and which require further deliberation than we permitted in comments to Staff's proposal.

Conclusions of Law

1. We should facilitate the adoption of energy storage by VNEM customers.

2. We should adopt Alternative #1 (VNEM systems paired with storage that do not charge their storage from the grid) but allow for further vetting regarding implementation of Alternative #1, including the options proposed by CalSEIA and SCE for enabling paired storage to draw grid power in order to maintain control system functionality.

3. We should seek to better understand the grid impacts of VNEM arrangements, in order to consider whether the investor owned utilities should afford those customers the option to virtually reduce their demand charges where they exist, and associated issues including billing fees to accommodate such requests.

4. The investor owned utilities should provide information regarding the extent of low income and affordable housing VNEM arrangements that locate generation and common area load behind the same service delivery point, as opposed to arrangements that span multiple service delivery points.

5. PG&E should share and explain its existing methodology for calculating netted demand charges.

6. In the interest of proceeding with implementation of Alternative #1, we should not consider additional issues raised by parties at this time.

O R D E R

IT IS ORDERED that:

1. Within 60 days of the issue date of this decision, Energy Division Staff shall organize and facilitate a public workshop focused on implementation of Alternative #1, whereby the virtual net energy metering generator and the storage device would be located behind the same output meter and include a physical non-import relay or a functionally equivalent non-import configuration to prevent grid power from flowing toward the battery, with the exception of a minimal amount of grid energy necessary to maintain the storage device's operational viability. The workshop shall provide parties with an opportunity to seek clarification of the proposals, for maintaining storage device viability, put forth by the California Solar Energy Industries Association and Southern California Edison Company. The workshop shall also direct parties / workshop participants to identify any implementation risks and consider ways to address those risks.

2. Within 45 days of the date of the workshop ordered in Ordering Paragraph 1, Pacific Gas and Electric Company, Southern California Edison Company and San Diego Gas & Electric Company must file a Tier-2 advice letter modifying all of their respective virtual net energy metering tariffs to implement Alternative #1. These advice letters must reflect any specifications provided by Energy Division Staff as a result of the workshop ordered in Ordering Paragraph 1.

3. Within 30 days of the issue date of this decision, PG&E must file and serve a document that explains its existing methodology for calculating netted demand charges for VNEM customers who request to virtually offset their demand charges.

This order is effective today.

Dated December 14, 2017, at San Francisco, California.

MICHAEL PICKER
President
CARLA J. PETERMAN
LIANE M. RANDOLPH
MARTHA GUZMAN ACEVES
CLIFFORD RECHTSCHAFFEN
Commissioners